

METHODS FOR IDENTIFYING AGENTS WHICH ALTER
HISTONE PROTEIN ACETYLATION, DECREASE AGING, INCREASE
LIFESPAN

ABSTRACT OF THE DISCLOSURE

- 5 Methods of identifying agents which alter the NAD-dependent acetylation status
and mono-ADP-ribosylation of nuclear proteins are disclosed. The methods further
include identifying agents which alter the life span or aging of a cell or an organism by
determining the level of NAD-dependent acetylation and/or ADP ribosylation of a
nuclear protein. The invention also relates to a mammalian Sir2 protein which acetylates
10 or deacetylates nuclear proteins in a NAD-dependent manner and has mono-ADP-
ribosyltransferase activity. Host cells producing the Sir2 protein and antibodies to the
Sir2 protein are also provided.